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## SYNTHETIC STRUCTURED FINANCIAL INSTRUMENTS

ECONOFICTION CALL, CAPITAL, DERIVATE, FINANCE, OPTIONS, PUT

DEBT INSTRUMENTS	EQUITIES	CURRENCIES	OTHER COMMODITIES	DERIVATIVES
<ul style="list-style-type: none"> <li>• CHOICE OF BOND</li> <li>• CREDIT QUALITY</li> <li>• YIELD</li> <li>• MATURITY AND DURATION</li> </ul>	<ul style="list-style-type: none"> <li>• CHOICE OF EQUITY</li> <li>• INVENTORY RISK</li> <li>• BUY AND SELL DISCIPLINE</li> <li>• INDEX TRADING</li> </ul>	<ul style="list-style-type: none"> <li>• CHOICE OF CURRENCY</li> <li>• CURRENCIES MANAGED AS A BLOCK</li> <li>• INTER- AND INTRABLOCK ALLOCATION</li> </ul>	<ul style="list-style-type: none"> <li>• CHOICE OF COMMODITY</li> <li>• COMPLEMENTARITY AND CONTRADICTION WITH OTHER INVESTMENTS</li> <li>• BACKWARDATION</li> </ul>	<ul style="list-style-type: none"> <li>• RISK CAPITAL CONCEPT</li> <li>• USE FOR HEDGING</li> <li>• USE OF LEVERAGE AND ITS AFTERMATH</li> </ul>

An option is common form of a derivative. It's a contract, or a provision of a contract, that gives one party (the option holder) the right, but not the obligation to perform a specified transaction with another party (the option issuer or option writer) according to specified terms. Options can be embedded into many kinds of contracts. For example, a corporation might issue a bond with an option that will allow the company to buy the bonds back in ten years at a set price. Standalone options trade on exchanges or Over The Counter (OTC). They are linked to a variety of underlying assets. Most exchange-traded options have stocks as their underlying asset but OTC-traded options have a huge variety of underlying assets (bonds, currencies, commodities, swaps, or baskets of assets). There are two main types of options: calls and puts:

- **Call options** provide the holder the right (but not the obligation) to purchase an underlying asset at a specified price (the strike price), for a certain period of time. If the stock fails to meet the strike price before the expiration date, the option expires and becomes worthless. Investors buy calls when they think the share price of the underlying security will rise or sell a call if they think it will fall. Selling an option is also referred to as "writing" an option.
- **Put options** give the holder the right to sell an underlying asset at a specified price (the strike price). The seller (or writer) of the put option is obligated to buy the stock at the strike price. Put options can be exercised at any time before the option expires. Investors buy puts if they think the share price of the underlying stock will fall, or sell one if they think it will rise. Put buyers – those who hold a "long" – put are either speculative buyers looking for leverage or "insurance" buyers

who want to protect their long positions in a stock for the period of time covered by the option. Put sellers hold a "short" expecting the market to move upward (or at least stay stable) A worst-case scenario for a put seller is a downward market turn. The maximum profit is limited to the put premium received and is achieved when the price of the underlying is at or above the option's strike price at expiration. The maximum loss is unlimited for an uncovered put writer.

Coupon is the annual interest rate paid on a bond, expressed as percentage of the face value.

**Coupon rate or nominal yield = annual payments ÷ face value of the bond**

**Current yield = annual payments ÷ market value of the bond**

The reason for these terms to be briefed here through their definitions from investopedia lies in the fact that these happen to be pillars of synthetic financial instruments, to which we now take a detour.

According to the **International Financial Reporting Standards (IFRS)**, a synthetic instrument is a financial product designed, acquired, and held to emulate the characteristics of another instrument. For example, such is the case of a floating-rate long-term debt combined with an interest rate swap. This involves

- Receiving floating payments
- Making fixed payments, thereby synthesizing a fixed-rate long-term debt

Another example of a synthetic is the output of an option strategy followed by dealers who are selling synthetic futures for a commodity that they hold by using a combination of put and call options. By simultaneously buying a put option in a given commodity, say, gold, and selling the corresponding call option, a trader can construct a position analogous to a short sale in the commodity's futures market.

Because the synthetic short sale seeks to take advantage of price disparities between call and put options, it tends to be more profitable when call premiums are greater than comparable put premiums. For example, the holder of a synthetic short future will profit if gold prices decrease and incur losses if gold prices increase.

By analogy, a long position in a given commodity's call option combined with a short sale of the same commodity's futures creates price protection that is similar to that gained through purchasing put options. A synthetic put seeks to capitalize on disparities between call and put premiums.

Basically, synthetic products are covered options and certificates characterized by identical or similar profit and loss structures when compared with traditional financial instruments, such as equities or bonds. Basket certificates in equities are based on a specific number of selected stocks.

A covered option involves the purchase of an underlying asset, such as equity, bond, currency, or other commodity, and the writing of a call option on that same asset. The writer is paid a premium, which limits his or her loss in the event of a fall in the market value of the underlying. However, his or her potential return from any increase in the asset's market value is conditioned by gains limited by the option's strike price.

The concept underpinning synthetic covered options is that of duplicating traditional covered options, which can be achieved by both purchase of the underlying asset and writing of the call option. The purchase price of such a product is that of the underlying, less the premium received for the sale of the call option.

Moreover, synthetic covered options do not contain a hedge against losses in market value of the underlying. A hedge might be emulated by writing a call option or by calculating the return from the sale of a call option into the product price. The option premium, however, tends to limit possible losses in the market value of the underlying.

Alternatively, a synthetic financial instrument is done through a certificate that accords a right, based on either a number of underlyings or on having a value derived from several indicators. This presents a sense of diversification over a range of risk factors. The main types are

- Index certificates
- Region certificates
- Basket certificates

By being based on an official index, index certificates reflect a given market's behavior. Region certificates are derived from a number of indexes or companies from a given region, usually involving developing countries. Basket certificates are derived from a selection of companies active in a certain industry sector.

An investment in index, region, or basket certificates fundamentally involves the same level of potential loss as a direct investment in the corresponding assets themselves. Their relative advantage is diversification within a given specified range; but risk is not eliminated. Moreover, certificates also carry credit risk associated to the issuer.

Also available in the market are compound financial instruments, a frequently encountered form being that of a debt product with an embedded conversion option. An example of a compound financial instrument is a bond that is convertible into ordinary shares of the issuer. As an accounting standard, the IFRS requires the issuer of such a financial instrument to present separately on the balance sheet the

- Equity component
- Liability component

On initial recognition, the fair value of the liability component is the present value of the contractually determined stream of future cash flows, discounted at the rate of interest applied at that time by the market to substantially similar cash flows. These should be characterized by practically the same terms, albeit without a conversion option. The fair value of the option comprises its

- Time value
- Intrinsic value (if any)

The IFRS requires that on conversion of a convertible instrument at maturity, the reporting company derecognizes the liability component and recognizes it as equity. Embedded derivatives are an interesting issue inasmuch as some contracts that themselves are not financial instruments may have financial instruments embedded in them. This is the case of a contract to purchase a commodity at a fixed price for delivery at a future date.

Contracts of this type have embedded in them a derivative that is indexed to the price of the commodity, which is essentially a derivative feature within a contract that is not a financial derivative. **International Accounting Standard 39 (IAS 39)** of the IFRS requires that under certain conditions an embedded derivative is separated from its host contract and treated as a derivative instrument. For instance, the IFRS specifies that each of the individual derivative instruments that together constitute a synthetic financial product represents a contractual right or obligation with its own terms and conditions. Under this perspective,

- Each is exposed to risks that may differ from the risks to which other financial products are exposed.
- Each may be transferred or settled separately.

Therefore, when one financial product in a synthetic instrument is an asset and another is a liability, these two do not offset each other. Consequently, they should be presented on an entity's balance sheet on a net basis, unless they meet specific criteria outlined by the aforementioned accounting standards.

Like synthetics, structured financial products are derivatives. Many are custom-designed bonds, some of which (over the years) have presented a number of problems to their buyers and holders. This is particularly true for those investors who are not so versatile in modern complex instruments and their further-out impact.

Typically, instead of receiving a fixed coupon or principal, a person or company holding a structured note will receive an amount adjusted according to a fairly sophisticated formula. Structured instruments lack transparency; the market, however, seems to like them, the proof being that the amount of money invested in structured notes continues to increase. One of many examples of structured products is the **principal exchange-rate-linked security (PERLS)**. These derivative instruments target changes in currency rates. They are disguised to look like bonds, by structuring them as if they were debt instruments, making it feasible for investors who are not permitted to play in currencies to place bets on the direction of exchange rates.

For instance, instead of just repaying principal, a PERLS may multiply such principal by the change in the value of the dollar against the euro; or twice the change in the value of the dollar against the Swiss franc or the British pound. The fact that this repayment is linked to the foreign exchange rate of different currencies sees to it that the investor might be receiving a lot more than an interest rate on the principal alone – but also a lot less, all the way to capital attrition. (Even **capital protection notes** involve capital attrition since, in certain cases, no interest is paid over their, say, five-year life cycle.)

Structured note trading is a concept that has been subject to several interpretations, depending on the time frame within which the product has been brought to the market. Many traders tend to distinguish between three different generations of structured notes. The elder, or first generation, usually consists of structured instruments based on just one index, including

- Bull market vehicles, such as inverse floaters and cap floaters
- Bear market instruments, which are characteristically more leveraged, an example being the superfloaters

Bear market products became popular in 1993 and 1994. A typical superfloater might pay twice the **London Interbank Offered Rate (LIBOR)** minus 7 percent for two years. At currently prevailing rates, this means that the superfloater has a small coupon at the beginning that improves only if the LIBOR rises. Theoretically, a coupon that is below current market levels until the LIBOR goes higher is much harder to sell than a big coupon that gets bigger every time rates drop. Still, bear plays find customers.

Second-generation structured notes are different types of exotic options; or, more precisely, they are yet more exotic than superfloaters, which are exotic enough in themselves. There exist serious risks embedded in these instruments, as such risks have never been fully appreciated. Second-generation examples are

- Range notes, with embedded binary or digital options
- Quanto notes, which allow investors to take a bet on, say, sterling London Interbank Offered Rates, but get paid in dollar.

There are different versions of such instruments, like you-choose range notes for a bear market. Every quarter the investor has to choose the “range,” a job that requires considerable market knowledge and skill. For instance, if the range width is set to 100 basis points, the investor has to determine at the start of the period the high and low limits within that range, which is far from being a straight job.

Surprisingly enough, there are investors who like this because sometimes they are given an option to change their mind; and they also figure their risk period is really only one quarter. In this, they are badly mistaken. In reality even for banks you-choose notes are much more difficult to hedge than regular range notes because, as very few people appreciate, the hedges are both

- Dynamic
- Imperfect

There are as well third-generation notes offering investors exposure to commodity or equity prices in a cross-category sense. Such notes usually appeal to a different class than fixed-income investors. For instance, third-generation notes are sometimes purchased by fund managers who are in the fixed-income market but want to diversify their exposure. In spite of the fact that the increasing sophistication and lack of transparency of structured financial instruments sees to it that they are too often misunderstood, and they are highly risky, a horde of equity-linked and commodity-linked notes are being structured and sold to investors. Examples are LIBOR floaters designed so that the coupon is “LIBOR plus”:

The pros say that flexibly structured options can be useful to sophisticated investors seeking to manage particular portfolio and trading risks. However, as a result of exposure being assumed, and also because of the likelihood that there is no secondary market, transactions in flexibly structured options are not suitable for investors who are not

- In a position to understand the behavior of their intrinsic value
- Financially able to bear the risks embedded in them when worst comes to worst

It is the price of novelty, customization, and flexibility offered by synthetic and structured financial instruments that can be expressed in one four-letter word: risk. Risk taking is welcome when we know how to manage our exposure, but it can be a disaster when we don't – hence, the wisdom of learning ahead of investing the challenges posed by derivatives and how to be in charge of risk control.

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← PREVIOUS   NEXT →

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